

BIOLOGICAL RESOURCES PLAN
FOR
CONSTRUCTION, OPERATION, AND MAINTENANCE
OF TACTICAL INFRASTRUCTURE
FOR
SAN DIEGO SECTOR, CALIFORNIA

(b) (7)(E) STATION
(b) (7)(E) STATION
(b) (7)(E) STATION



U.S. DEPARTMENT OF HOMELAND SECURITY
U.S. CUSTOMS AND BORDER PROTECTION
U.S. BORDER PATROL SAN DIEGO SECTOR

Prepared by



JUNE 2008

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BW-FOIA-CBP-003483

ABBREVIATIONS AND ACRONYMS

BMP	Best Management Practice
BRP	Biological Resources Plan
CBP	U.S. Customs and Border Protection
DAPTF	Declining Amphibian Population Task Force
DHS	U.S. Department of Homeland Security
ESP	Environmental Stewardship Plan
FR	Federal Register
GIS	Geographic Information System
GPS	Global Positioning System
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
mph	miles per hour
OBP	Office of Border Patrol
PCE	Primary constituent element
PV-1	Personnel-Vehicle Fence Type I
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USBP	U.S. Border Patrol
USFWS	U.S. Fish and Wildlife Service

EXECUTIVE SUMMARY

The United States (U.S.) Department of Homeland Security (DHS), Customs and Border Protection (CBP), U.S. Border Patrol (USBP) plans to construct, operate, and maintain approximately (b) (7)(E)

(b) (7)(E)

(b) (7)(E)

(b) (7)(E)

Ten federally listed taxa are known to occur, or could occur, within or adjacent to the project area (see **Table ES-1**).

Of the species listed above, the Project is likely to adversely affect only the Quino checkerspot butterfly and California coastal gnatcatcher. The Project may affect, but is not likely to adversely affect, Quino checkerspot butterfly critical habitat, the least Bell's vireo, and the San Diego thornmint. The project may affect peninsular bighorn sheep and peninsular bighorn sheep critical habitat; however, the nature or intensity of the effects cannot be accurately predicted, at this time. It has been determined that the Project will have no effect on coastal California gnatcatcher critical habitat, the southwestern willow flycatcher, the arroyo toad, the Otay tarplant, Encinitas baccharis, and the willowy monardella. Therefore, these species will not be discussed in detail in this Biological Resources Plan (BRP).

On April 1, 2008, the Secretary of DHS, pursuant to his authority under Section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA), exercised his authority to waive certain environmental and other laws in order to ensure expeditious construction of tactical infrastructure along the U.S./Mexico international border. Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the laws that are included in the waiver, including the Endangered Species Act, the Secretary committed DHS to continue to protect valuable natural and cultural resources. CBP strongly supports the Secretary's commitment to responsible environmental stewardship. To that end, CBP has prepared the following BRP, which analyzes the potential impacts on threatened and endangered species associated with construction of tactical infrastructure in the USBP's San Diego Sector. The BRP also discusses CBP's plans as to how potential impacts on threatened and endangered species can be mitigated. The BRP will help to guide CBP's efforts going forward.

Table ES-1. Federally Listed Species and Critical Habitats Potentially Occurring Within the Project Area and the Determination of Effects

Species	Listing/Critical Habitat Designated	Determination of Effect
Quino checkerspot butterfly, <i>Euphydryas editha quino</i>	Endangered	Likely to adversely affect
Quino checkerspot butterfly, <i>Euphydryas editha quino</i> Critical Habitat	Designated (2002)	Not likely to adversely affect
Quino checkerspot butterfly, <i>Euphydryas editha quino</i> Critical Habitat	Proposed (2008)	Not likely to adversely affect
Coastal California gnatcatcher, <i>Poliophtila californica californica</i>	Threatened	Likely to adversely affect
Coastal California gnatcatcher, <i>Poliophtila californica californica</i> Critical Habitat	Revised (2007)	No effect
Southwestern willow flycatcher, <i>Empidonax traillii extimus</i>	Endangered	No effect
Least Bell's vireo, <i>Vireo bellii pusillus</i>	Endangered	Not likely to adversely affect
Arroyo toad, <i>Bufo californicus</i>	Endangered	No effect
Peninsular bighorn sheep, <i>Ovis canadensis</i>	Endangered	May affect
Peninsular bighorn sheep, <i>Ovis Canadensis</i> Critical Habitat	Designated (2001)	May affect
	Revised proposed designation (2007)	May affect
Otay tarplant, <i>Deinandra conjugens</i>	Threatened	No effect
Encinitas baccharis, <i>Baccharis vanessae</i>	Threatened	No effect
Willow/Jennifer's Monardella, <i>Monardella linoidea</i> ssp. <i>viminea</i> / <i>Monardella stoneana</i>	Endangered	No effect
San Diego Thornmint, <i>Acanthomintha ilicifolia</i>	Threatened	Not likely to adversely affect

Notes:

¹ The U.S. Fish and Wildlife Service anticipates the revised final critical habitat designation for the Quino checkerspot butterfly will be published in the *Federal Register* in 2008.

² The U.S. Fish and Wildlife Service anticipates the revised final critical habitat designation for the Peninsular bighorn sheep will be published in the *Federal Register* in October 2008.

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SAN DIEGO SECTOR****(b) (7)(E) STATIONS****TABLE OF CONTENTS**

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1. PROJECT DESCRIPTION

The United States (U.S.) Department of Homeland Security (DHS), Customs and Border Protection (CBP), U.S. Border Patrol (USBP) will construct, operate, and maintain (b) (7)(E) (i.e., the PF 225 Project) along the U.S./Mexico international border, with construction expected to be completed by December 31, 2008.

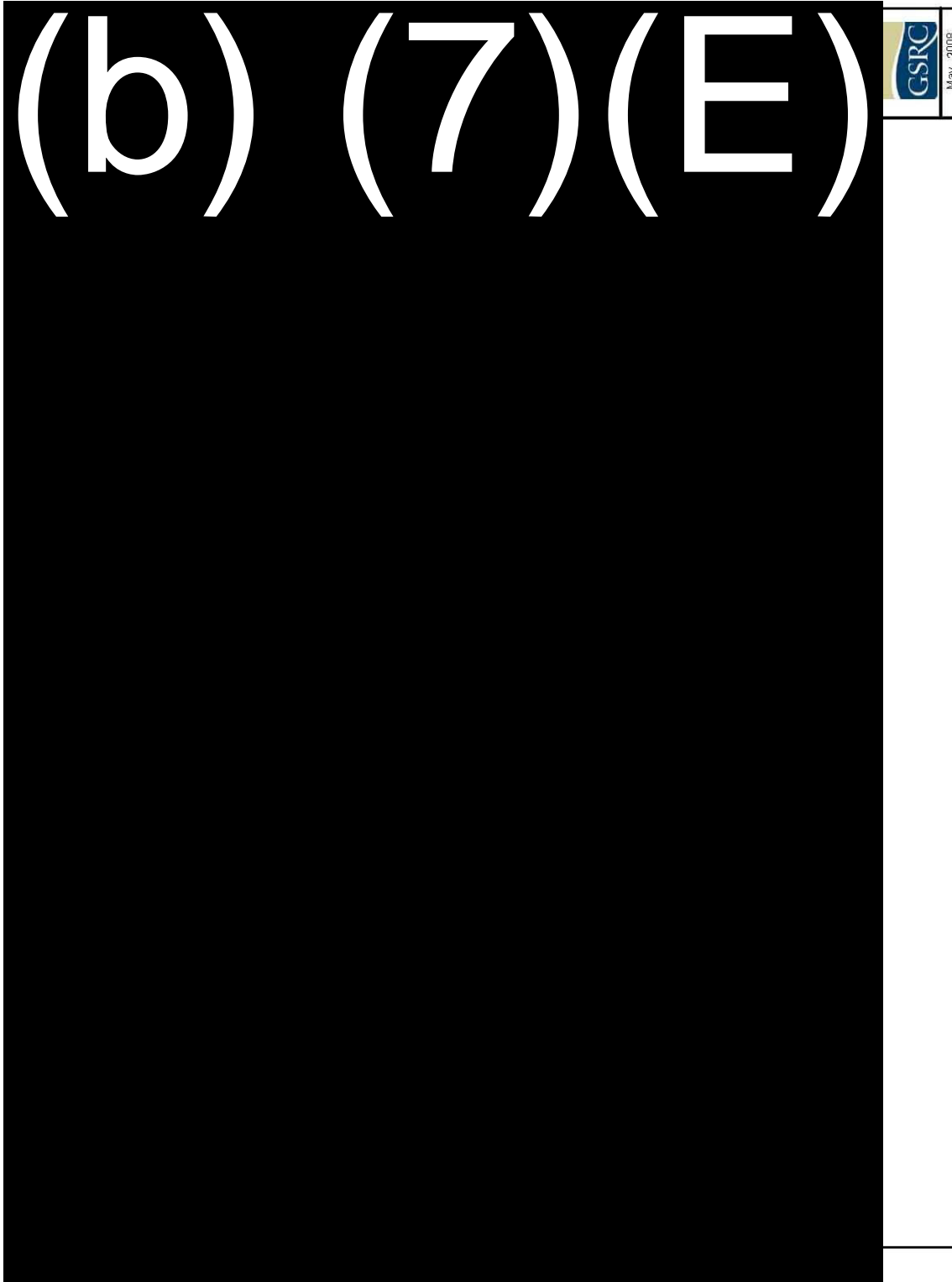
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1.1 LOCATION

CBP, USBP plans to construct, operate, and maintain approximately (b) (7)(E) (designated as Sections A2-B through A2-N) in the USBP San Diego Sector (see **Figure 1-1**). Tactical infrastructure consists of primary pedestrian fence, and patrol and access roads (b) (7)(E) along the U.S./Mexico international border in (b) (7)(E), California (see **Appendix A** for detailed maps). Lights will not be constructed as part of the Project. **Table 1-1** summarizes the characteristics of each section of tactical infrastructure.

1.2 CONSTRUCTION, OPERATION, AND MAINTENANCE

The Project construction will impact a total of (b) (7)(E) and consists of the following Project components: (1) the installation and maintenance of new barrier fence combined with a parallel border fence patrol road; (2) road improvements to existing roads to improve access for construction, maintenance, and patrols; (3) new road construction to access tactical infrastructure; and (4) the development of temporary construction staging areas.



California

(b) (7)(E)

Figure 1-1. General Location of the Project in

Table 1-1. Details of Sections A2-B through A2-N

Section	Section Name	Fence Length (miles)	Tactical Infrastructure	Approximate Cut/Fill (cubic yards)	Drainage Structures	Site Access	Permanent Impacts Associated with Footprint of Patrol Road and Fence*
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	9,000/15,000	2-3 culverts	(b) (7)(E)	5.0 acres of Diegan coastal sage scrub
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	2,000-6,000/ 1,000-5,000	2 culverts	(b) (7)(E)	0.9 acres of Diegan coastal sage scrub
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	46,000-114,000/ 16,000-69,000	3-5 culverts	(b) (7)(E)	2.3 acres of Diegan coastal sage scrub/4.6 acres of chamise chaparral
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	(b) (7)(E)	4,000/2,000	3 culverts	(b) (7)(E)	0.9 acres of chamise chaparral

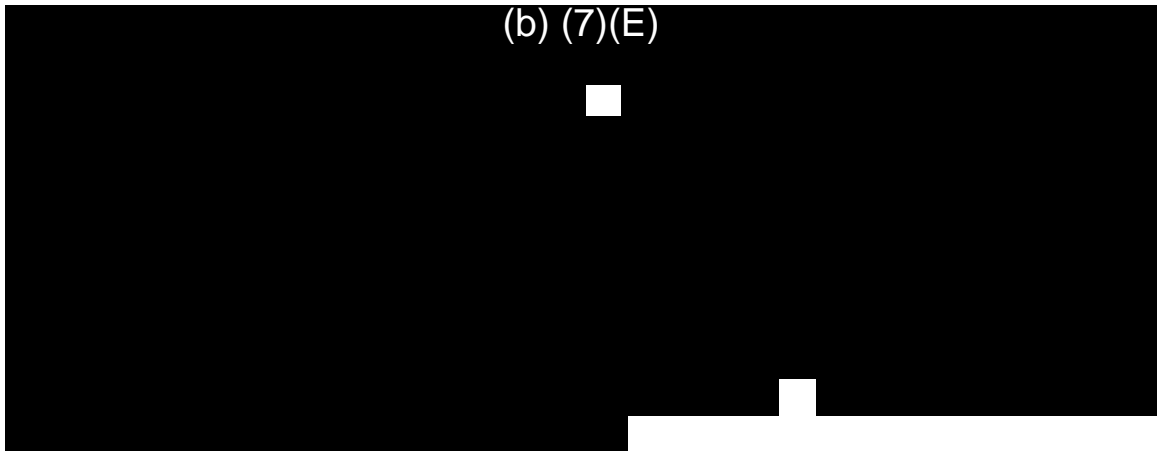
Section	Section Name	Fence Length (miles)	Tactical Infrastructure	Approximate Cut/Fill (cubic yards)	Drainage Structures	Site Access	Permanent Impacts Associated with Footprint of Patrol Road and Fence*
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)		16,000–39,000/ 12,000–13,000	2 culverts	(b) (7)(E)	5.2 acres of chamise chaparral
(b) (7)(E)				44,000/11,000	3 culverts		3.3 acres of mixed chaparral and coast live oak woodland

Section	Section Name	Fence Length (miles)	Tactical Infrastructure	Approximate Cut/Fill (cubic yards)	Drainage Structures	Site Access	Permanent Impacts Associated with Footprint of Patrol Road and Fence*
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)		1,600/900	2 culverts	(b) (7)(E)	0.9 acres of mixed chaparral
(b) (7)(E)	66,000–118,000/13,000–33,000			2–5 culverts	8.0 acres of mixed chaparral		
(b) (7)(E)	None planned			1 low water crossing	0.4 acres of chamise chaparral		
(b) (7)(E)	None			None	0.3 acres of mixed chaparral for the access road		

Section	Section Name	Fence Length (miles)	Tactical Infrastructure	Approximate Cut/Fill (cubic yards)	Drainage Structures	Site Access	Permanent Impacts Associated with Footprint of Patrol Road and Fence*
(b) (7)(E)	(b) (7)(E)	(b) (7)(E)		None	None	(b) (7)(E)	None
(b) (7)(E)				29,000/1,000	2 culverts		5.3 acres of semi-desert chaparral
(b) (7)(E)				None	None		None

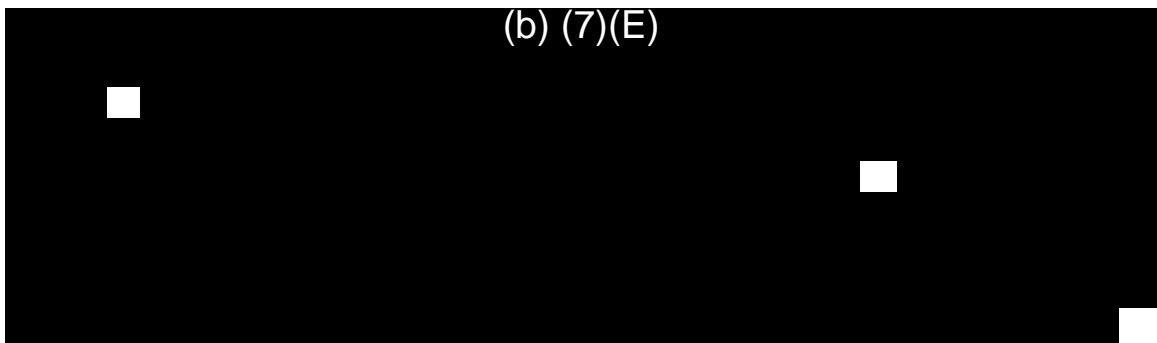
1.2.1 Fence Installation

The Project includes the construction of a total of approximately (b) (7)(E) of new Personnel-Vehicle Fence Type 1 (PV-1). Installation of new fence and the associated patrol road will permanently impact approximately (b) (7)(E) consisting of Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, southern mixed chaparral, redshank chaparral, and semi-desert chaparral. In most sections, the fence will (b) (7)(E). In other sections, (b) (7)(E). (b) (7)(E)



New fence construction will occur approximately (b) (7)(E) north of the international border within the 60-foot-wide Roosevelt Reservation. This 60-foot-wide area constitutes the primary project corridor in which the majority of construction and maintenance activities will occur.

1.2.2 Roads



The Project will include improvements to existing patrol and access roads for use during fence construction and maintenance activities. Generally, the road improvements will widen existing access roads to (b) (7)(E) and the existing border fence patrol road to (b) (7)(E). Widening the border fence patrol road to (b) (7)(E).

(b) (7)(E) In some cases, the border fence patrol road will not need to be widened.

(b) (7)(E) except during extreme flood conditions. The designs of the structures have not yet been determined, but will typically consist of a (b) (7)(E). (b) (7)(E) will be placed on the (b) (7)(E) for energy dissipation. The footprint of the crossing will be expected to extend approximately (b) (7)(E) either side of the crossing to allow placement of the (b) (7)(E). Likewise, the designs for other types of (b) (7)(E) have not yet been finalized, but are expected to include (b) (7)(E) with energy dissipation installed on either end of (b) (7)(E). Clean, native material will be brought in from local sources for fill activities.

Blasting might be needed in certain sections that have large rocks or boulders that create sharp curves, large humps in the road, or other driving hazards that need to be eliminated (i.e., as found in (b) (7)(E)). Holes will be drilled into the center of the larger rocks and explosive material will be placed in the holes and detonated in order to split or fracture the rock into smaller, more manageable pieces for removal. Because this process will create immediate, but short-lived increase in noise levels, a noise analysis will be conducted prior to construction by the blasting contractor. Dust and small rock fragments will be emitted into the air during blasting detonation; however, these will be expected to immediately settle and fall to the ground. Localized, negligible impacts on plants would occur from the settling of dust and small rock fragments. Blasting contractors will be required to establish a blasting plan with Best Management Practices (BMPs) that will ensure that any blasting activities will have minimal noise impacts locally and regionally. Additional information on the increase in noise and pressure associated with blasting is presented in **Section 4.2 of this Environmental Stewardship Plan (ESP)**.

Impacts on vegetation from the construction of new patrol roads are included in the impacts presented in **Table 1-1**. Additionally, road widening will permanently impact a total of approximately 8 acres consisting of chamise chaparral and mixed chaparral (see **Table 1-2**).

Table 1-2. Road Widening Impacts

Section	Chamise Chaparral (acres)	Disturbed Diegan Coastal Sage Scrub (acres)
A2-E: (b) (7)(E)	1.1	0
A2-F: (b) (7)(E)	0.5	0
A-2K: (b) (7)(E)	0	6.4
Totals	1.6	6.4

1.2.3 Staging Areas

The Project includes the construction of eight staging areas, temporarily impacting a total of approximately 23 acres (see **Table 1-3**). Staging areas are needed to accommodate construction equipment and stockpile materials. All vegetation within these staging areas will be cleared. Following completion of construction, staging areas will be restored to a vegetated state (see **Section 1.3**). Note that staging areas have not been surveyed and estimated temporary impacts are based on previously available information.

Table 1-3. Staging Area Temporary Impacts

Section	Disturbed and Undisturbed Diegan Coastal Sage Scrub (acres)	Disturbed Barren (acres)	Disturbed and Undisturbed Nonnative Grassland (acres)	Disturbed Semi-Desert Chaparral (acres)	Fallow Field (acres)
A2-B: (b) (7)(E)	2.07	0	0	0	0
A2-C: (b) (7)(E)	0	0.83	0	0	0
A2-E: (b) (7)(E)	0	0	3.84	0	0
A2-F: (b) (7)(E)	0	1.92	0	0	0
A2-F: (b) (7)(E)	0	0.52	0	0	0
A2-G: (b) (7)(E)	1.87	0	0	0	0
A2-H: (b) (7)(E)	0	0	1.88	0	0
A2-I: (b) (7)(E)					
A2-M: (b) (7)(E)	0	0	0	7.0	0
A2-N: (b) (7)(E)	0	0	0	0	2.03
A2-N: (b) (7)(E)	0	6.76	0	0	0
Subtotal	3.94	10.03	5.72	7	2.03
Total Temporary Impact = 28.72					

1.2.4 Operations and Maintenance

There will be no change in overall USBP Sector operations. The fences will be made from (b) (7)(E). No painting will be required. Fence maintenance will include removing any accumulated debris on the fence after a rain event to avoid potential future flooding. Sand and brush that builds up against the fence will be removed, as needed. Brush removal could include mowing, removal of small trees, and application of herbicide, if needed. During normal patrols, Sector personnel will observe the condition of the fence. Any destruction or breaches of the fence will be repaired, as needed.

Access roads and the border fence patrol road will be regularly maintained during construction by using water to compact soils and provide safe driving conditions. A tackifier (such as road oil or PennzSuppress) will be applied to the roads post-construction and as necessary to attempt to increase the durability and longevity of the roads.

Operational activities (such as patrols and apprehensions) will begin using new patrol roads that are being constructed, but no significant change (b) (7)(E). The USBP (b) (7)(E) operations routinely adapt to evolving operational requirements, and will continue to do so under the Project. The USBP (b) (7)(E) will retain its current flexibility to use the most effective methods to provide a law enforcement resolution to illegal cross-border activity.

1.3 BEST MANAGEMENT PRACTICES

1.3.1 Pre-Construction

Cultural, geotechnical, and biological surveys were necessary prior to barrier fence construction and have been reviewed by the U.S. Fish and Wildlife Service (USFWS). Avoidance and minimization measures for cultural and biological surveys were judged to be not necessary based on the lack of impacts associated with the surveys. The following subset of BMPs applicable to the habitats and species found in the project area are Project objectives and will be implemented to the extent possible:

General

1. Conduct geotechnical surveys outside the bird breeding season (February 15 to August 31) and bighorn sheep lambing season (January 1 to May 31) when working within habitat occupied by these species or within 100 meters of habitat occupied by these species.
2. Survey activities will avoid destroying native trees and shrubs. If native vegetation must be impacted, the vegetation will be crushed versus cut.

3. Areas outside the impact corridor or designated access roads or staging areas where native vegetation is crushed by drill rigs or other machinery will be recorded with Global Positioning System (GPS) and included in the Project report.
4. Areas impacted by drill rigs or other machinery during geotechnical activities that are outside the PF 225 construction footprint will be assessed by the CBP or its contractor. Adverse effects identified will be mitigated (e.g., with access trail restoration or barricades).
5. All pits and trenches related to geotechnical activities will be refilled with parent material when geotechnical activities are completed.
6. Construction of, or improvement to, access roads was not proposed for pre-construction activities and therefore is not part of the pre-construction component of this coordination.

Vegetation

1. Survey activities will avoid wetlands.
2. Survey activities will avoid all federally threatened and endangered plant species.

Quino Checkerspot Butterfly

1. Geotechnical surveys within occupied Quino checkerspot butterfly habitat or designated critical habitat will be accomplished with the assistance of a qualified Quino checkerspot butterfly expert. The expert will direct geotechnical surveyors and their equipment to avoid impacting areas likely to contain Quino checkerspot butterfly host plant species or diapause habitat. The USFWS will assist CBP in locating qualified experts.

Arroyo Toad

1. Pre-construction activities will avoid (b) (7)(E), and (b) (7)(E). Specifically, all geotechnical work will occur outside the 100-year floodplain to avoid impacts on aestivating arroyo toads.

1.3.2 Construction BMPs

The following BMPs should be implemented to avoid or minimize impacts associated with the Project. These represent Project objectives for implementation to the extent possible and will be incorporated into construction and monitoring contracts.

General BMPs

1. For each Project, CBP will either assume the presence of a federally listed species, based on suitable habitat or known presence, and implement appropriate measures; or will, as part of Project design and planning, perform pre-construction surveys. In California, three “categories” of federally listed species relate to the need for pre-construction surveys.
 - a. *Species that use specific sites that are scattered over the wider landscape for which not all sites have been identified:* Surveys in and adjacent to project areas that contain suitable habitat but do not have a recent record for the species might be appropriate. Species presence might also be seasonal, and surveys will take place during periods when the species will be present. This category includes the razorback sucker, San Diego fairy shrimp, Riverside fairy shrimp, San Diego button celery, spreading navarretia, Otay Mesa mint, and California Orcutt grass.
 - b. *Species with suitable habitat over an extensive area in which the species is not evenly distributed:* Surveys of the project area and adjacent areas that may be affected will be completed before final planning to assist in avoidance and minimization of effects. This category includes the following species: coastal California gnatcatcher, least Bell’s vireo, southwestern willow flycatcher, Yuma clapper rail, brown pelican, yellow-bellied cuckoo, Quino checkerspot butterfly, arroyo toad, desert tortoise, San Diego thornmint, Willowy monardella, *Encinitas baccharis*, Mexican flannelbush, Otay tarplant, San Diego ambrosia, and Peirson’s milk-vetch.
 - c. *Species that are highly mobile and can be found at various locations within the occupied area depending on resource availability, seasonal use patterns, or migratory behavior:* Surveys might be effective; however, due to the mobility of the species, they will only be viable for a limited time. Knowledge of seasonal movements and habitat use could be of more value than a site-specific survey for these species. This category includes the following species: Peninsular bighorn sheep.
2. Areas to be surveyed will be identified by the USFWS or Project biologists. Survey protocols exist for several species and will be followed to the extent practicable to accurately discern the presence or absence of species of interest. Surveys will be conducted prior to construction-related impacts to aid in determining Project effects. In addition to presence or absence information, the locations of the species of interest will be mapped and provided to the USFWS. The need for relocation of federally listed species from impact areas will be determined in coordination with the USFWS on a species-by-species basis prior to Project impacts (not including geotechnical). Specific relocation

measures will be provided by the USFWS for those species. Generally, species unable to voluntarily vacate the impact area will be relocated. Relocations will occur prior to those impacts deemed adverse to the subject species, to the extent practicable.

3. With the assistance of the USFWS, individual federally listed species found in the project area will be relocated by a qualified biologist to a nearby safe location and in accordance with accepted species handling protocols. The USFWS will assist CBP in finding suitable locations.
4. Construction work areas will be delineated and marked clearly in the field prior to habitat clearing, and the marked boundaries maintained throughout the construction period. Construction work areas include staging, laydown, and temporary stockpiling areas, and access and haul roads.
5. A construction contractor employee education program will be developed. All construction employees (including temporary, contractors, and subcontractors) will receive a training/awareness program prior to working on the Project. They will be advised of the potential impact to the federally listed species and the potential for penalties associated with taking such species. At a minimum, the program will include the following topics: description and occurrence of the listed and sensitive species in the area, their general ecology, sensitivity of the species to human activities, and Project features designed to reduce the impacts on these species and promote continued successful occupation of the project area environs.

Included in this program will be color photos of the listed species, which should be shown to the employees. Following the education program, the photos will be posted in the contractor and resident engineer office, where they should remain through the duration of the Project. The selected construction manager will be responsible for ensuring that employees are aware of the listed species. This BMP does not apply to border patrol operations.

6. CBP will designate a qualified biologist who will serve as the designated biological monitor for overseeing proper application of protective measures for federally listed species during construction activities within designated areas. The USFWS will assist CBP in finding qualified biologists. The biological monitor will immediately notify the Project proponent's designated representative to halt specific construction activities that might be out of compliance with the ESP for the Project. In such an event, CBP will halt those construction activities until the problem is rectified. All such actions will be documented and included in the Project Report.
7. If an individual of a federally listed species is found in the designated project area, work will cease in the area of the species until either a

qualified biological monitor can safely remove the individual, or it moves away on its own.

8. To the extent practicable and as schedule permits, the biological monitor will monitor construction activities within designated areas during critical times, such as breeding seasons, vegetation removal, and the installation of BMPs and exclusion fencing, to ensure that all avoidance and minimization measures are properly constructed and followed.
9. Construction speed limits will not exceed 35 miles per hour (mph) on major unpaved roads (graded with ditches on both sides) and 25 mph on all other unpaved roads.
10. Transmission of disease vectors and invasive nonnative aquatic species can occur if vehicles cross infected or infested streams or other waters and water or mud remains on the vehicle. If these vehicles subsequently cross or enter uninfected or infested waters, the disease or invasive species could be introduced to the new area. To prevent this, crossing of streams or marsh areas with flowing or standing water will be avoided, if possible; if avoidance is not possible, the vehicle will be sprayed with a 10 percent bleach solution or allowed to dry completely to kill any organisms.
11. All equipment maintenance, staging, laydown, dispensing of fuel or oil, or any other such construction activities will occur in designated upland areas. The designated upland areas will be located in such a manner as to prevent any runoff from entering waters of the United States, including wetlands.
12. Typical erosion-control measures and BMPs will be employed throughout the project area in accordance with the Project Storm Water Pollution Prevention Plan (SWPPP).
13. No off-road vehicle activity by construction workers or Project contractors will occur outside any section along the project corridor or existing access roads identified for use in the Project description.
14. No pets owned or under the care of CBP personnel or any and all construction workers will be permitted inside the Project's construction boundaries, adjacent native habitats, or other associated work areas. Use of CBP working dogs during CBP operations is excluded from this BMP.
15. Light poles and other pole-like structures will be designed to discourage roosting by birds, particularly ravens or raptors that might use the poles for hunting perches, by installing bird control products (such as those manufactured by Bird-B-Gone).
16. To prevent entrapment of wildlife species during the construction of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood. Each morning before the start of construction and before such holes or

trenches are filled, they will be thoroughly inspected for trapped animals. Any animals so discovered will be allowed to escape voluntarily, without harassment, before construction activities resume, or removed from the trench or hole by the biological monitor or other qualified biologist and allowed to escape unimpeded.

17. Existing roads will be utilized for construction purposes to the extent practical. If an existing road is available for Project purposes, even if improvement is necessary, that road will be utilized.
18. Potential for erosion off the designated roadbed into federally listed species habitat will be avoided or minimized.
19. Potential for entrapment of surface flows within the roadbed due to incisement or edging berms created by grading will be avoided or minimized.
20. Widening of existing or created roadbed beyond the design parameters due to improper maintenance and use will be avoided or minimized.
21. To the extent practicable, stream crossings will not be located near or at bends or meanders but rather at straight stream reaches where channel stability is enhanced.
22. Excessive use for construction purposes of unimproved roads that results in their deterioration such that it affects the surrounding threatened and endangered species habitat areas will be monitored, and corrective maintenance will be provided.
23. The minimal number of roads needed for the Project will be constructed and maintained to proper standards. Roads no longer needed, with Sector approval, will be closed and restored to natural surface and topography using appropriate techniques. The GPS coordinates of roads that are thus closed will be recorded and integrated into the Office of Border Patrol (OBP) Geographic Information System (GIS) database.
24. Roads will be designed to minimize road kill and fragmentation of federally listed populations to the extent practicable. Underpasses for wildlife might be appropriate to minimize road kill and population fragmentation. Exclusion fencing might be appropriate where road kill is likely or to direct species to underpasses or other passageways.
25. Disturbed areas will be utilized to the extent practical for any construction-related activities, including staging, laydown, and stockpiling.
26. All construction will follow CBP's management directive 5100 for waste management.
27. A CBP-approved spill protection plan will be developed and implemented at construction and maintenance sites to ensure that any toxic substances are properly handled and their escape into the environment is prevented. Agency standard protocols will be used. Drip pans

underneath equipment, containment zones used when refueling vehicles or equipment, and other measures will be implemented, as appropriate.

28. Waste materials and other discarded materials will be removed from the site as quickly as possible.
29. Waste water—meaning water used for Project purposes that is contaminated with construction materials, or that was used for cleaning equipment and thus carries oils, other toxic materials, or other contaminants as defined in state regulations—will be stored in closed containers on site until removed for disposal. Concrete wash water will not be dumped on the ground, but will be collected and moved offsite for disposal.
30. Soil-binding agents will be applied during the late summer/early fall months to avoid impacts on federally listed species. Soil-binding agents will not be used in or near surface waters (such as wetlands, perennial streams, intermittent streams, and washes).
31. Fill slopes associated with canyon fills will be restored per measures 32 to 34 (below), using native species. If slope stabilization is necessary (such as gabions or riprap), such material will be placed only at the toe-of-slope and in a manner that will not preclude fauna from accessing the fill slopes, the culvert/underpass, and the habitat beyond the fill slopes.

BMPS for Temporary Impacts

The following apply as offsetting conservation measures for temporary impacts.

32. All generally native areas, as opposed to generally developed areas, temporarily impacted by construction activities (e.g., staging areas or temporary access roads) will be revegetated with native plant species using a standardized restoration plan. The restoration plan will describe revegetating all temporarily disturbed generally native areas associated with the Project. All native seed and plant stock will be from seed and propagules collected within a 5-mile radius of the work area to the extent practicable. All seeding will occur during the first winter or fall following completion of the work, prior to expected winter rains.
33. No invasive exotic plant species will be seeded or planted adjacent to or near sensitive vegetation communities or waters of the United States. Impacted areas will be reseeded with plant species native to local habitat types, and will avoid the use of species listed as High or Moderate in the California Invasive Plant Council's Invasive Plant Inventory (Revision 2005) to the extent practicable. Areas hydroseeded for temporary erosion-control measures will use only native plant species appropriate to surrounding habitat types.
34. Temporary impact areas will be restored in kind, except that temporary impacts on disturbed habitat and nonnative grassland in generally native

areas will be revegetated with the most appropriate native plant palette following completion of the work.

Quino Checkerspot Butterfly (Quino)

1. Prior to the potential for Project impacts to occur (excluding geotechnical), all patches of dwarf plantain (*Plantago erecta*), and other known host plants occurring within and immediately adjacent to the Project footprint (*Plantago* spp.; *Castilleja exserta*, annual owl's clover; and *Cordylanthus rigidus*, thread-leaved birdsbeak), will be clearly delineated by a biologist who has experience identifying Quino habitat and is familiar with the areas of known Quino activity near the construction corridors. The host plant areas determined to be within the Project footprint will be delineated for future reference. The host plant areas determined to be immediately outside the Project footprint will be delineated with orange snow fencing or equivalent during construction activities to avoid additional direct impacts.
2. To the extent practicable, all host plants within the designated impact areas will be removed and transplanted after delineation.

Arroyo Toad

1. If facilities will be within 0.3 miles of toad habitat, the facility will be placed as near the outer edge of the area with as little ground disturbance as possible, vegetation clearing will be limited, and erosion-control measures will be put in place to reduce sediment runoff.
2. All new roads will be designed to minimize the risk of erosion or adverse effects on aquatic habitats of the toad. Routes that cross seasonally or perennially flowing streams will be avoided, if feasible. If not avoidable, crossings will be designed to minimize effects on streams by using culverts or other design features that protect natural substrates and flows.
3. The biological monitor will monitor arroyo toad activity during Project construction to minimize impacts on toads. Monitoring will be accomplished during the breeding season, as well as during precipitation events when toads will likely become active. The biological monitor will survey all project areas utilized during construction (e.g., roads, staging, construction, laydown) that are in or adjacent to arroyo toad habitat. Detected toads will be counted and moved a safe distance outside harm's way. Occurrences of such will be reported to the USFWS.
4. Arroyo toads found within the Project footprint will be captured and translocated by a qualified biologist to the closest area of suitable habitat. The biologist will coordinate with the appropriate property owners to allow for any arroyo toads to be placed there. The USFWS will assist CBP in locating qualified biological monitors.
5. During the removal of toads, a qualified biologist will maintain a complete record of all arroyo toads encountered and moved. The date, time of

capture, specific location of capture (using GPS) will be recorded and provided to the USFWS as part of the final Project Report. To avoid transferring disease or pathogens between aquatic habitats during surveys and handling of arroyo toads, the qualified biologist will follow the most recent version of the Declining Amphibian Population Task Force's (DAPTF) Code of Practice.

6. High-velocity releases from the Project activities (during and after construction) that could degrade habitat will be avoided.
7. Any use or storage of chemicals or fuels at construction sites or staging areas will be kept 0.3 miles away from toad habitat.
8. To the extent practicable, use of herbicides will not occur within toad habitat.

Peninsular Bighorn Sheep. During any construction activities in Sections A2-I, A2-J, A2-K, A2-L, A2-M, or A2-N and along associated access roads identified for use in the Project description, if a sheep is seen within 1 mile of the activity, any work that could disturb the sheep will cease. For vehicle operations, this will entail stopping the vehicle until the sheep moves away. Vehicles can continue on at reduced speeds (10 to 15 mph) once the sheep has moved away. For construction, the biological monitor will request that work be suspended until the sheep moves out of the area. As the schedule permits, construction crews will wait up to 3 hours from the initial sighting for the sheep to move beyond 1 mile away from the Project activity or vehicle. After that, if the construction schedule permits, project personnel may retreat from the area in the direction from which they came.

Encinitas Baccharis, Mexican Flannelbush, and Willowy/Jennifer's Monardella

1. If facilities will be located within or adjacent to occupied habitat, surveys to document the numbers and distribution of individuals will be conducted, and the Project will be designed to avoid individuals to the extent possible.
2. Individuals to be impacted by the Project will be translocated to a suitable site, using appropriate techniques. The USFWS will assist CBP in locating suitable sites and identifying appropriate techniques.
3. The biological monitor will advise and monitor construction activities to avoid accidental damage to nearby individuals outside the designated impact area.

San Diego Thornmint, Otay Tarplant, and San Diego Ambrosia

1. If facilities will be within or adjacent to occupied habitat, surveys to decipher the extent of occupied habitat will be conducted, and the Project will be designed to avoid individuals to the extent possible.

2. The biological monitor will supervise construction activities to avoid accidental damage to nearby individuals outside the designated impact area.

1.3.3 Mitigation

1. Using funds contributed to the mitigation pool by CBP, USFWS may offset permanent direct and indirect impacts on approximately 45.1 acres of habitat which constitute 26.1 acres of Quino checkerspot butterfly and 19.2 acres of coastal California gnatcatcher habitat, which overlap (see **Table 1-4**). USFWS may assign the equivalent funds needed to adaptively manage and monitor 88.1 acres of habitat. USFWS may use these monies to fund conservation actions benefitting these species.
2. Using funds contributed to the mitigation pool by CBP, USFWS may offset temporary direct and indirect impacts on approximately 28.7 acres of habitat that constitute approximately 10.9 acres of potential Quino checkerspot butterfly and 3.9 acres of coastal California gnatcatcher habitat, which overlap (see **Table 1-5**). Note that staging areas have not been surveyed and estimated temporary impacts are based on previously available information. USFWS may assign the equivalent funds needed to adaptively manage and monitor 10.9 acres of habitat. USFWS may use these monies to fund conservation actions benefitting these species.

Actual impacts to habitats will be documented during construction by the environmental monitors and included in the Project Report which will be made available to USFWS. Mitigation ratios and current estimates of impacts for each habitat type are presented in **Tables 1-4** and **1-5**.

Table 1-4. Summary of Permanent Impacts of the Project on Habitat and Mitigation to Offset Impacts

Habitat Type	Mitigation Ratio	Estimate of Permanent Impact	Acreages to Offset Impact
Disturbed Diegan coastal sage scrub	2.0	6.4	12.8
Diegan coastal sage scrub	3.0	8.2	24.6
Southern mixed chaparral	1.5	9.2	13.8
Chamise chaparral	1.5	12.7	19.05
Semi-desert chaparral	1.5	5.3	7.95
Southern coast live oak riparian forest	3.0	3.3	9.9
Totals	--	45.1	88.1

Table 1-5. Summary of Temporary Impacts of the Project on Habitat and Mitigation to Offset Impacts

Habitat Type	Mitigation Ratio	Estimate of Temporary Impact	Acreages to Offset Impact
Disturbed and Undisturbed Diegan coastal sage scrub	1.0	3.9	3.9
Semi-desert chaparral	1.0	7.0	7.0
Fallow field	0.0	2.0	0
Non-native grassland	0.0	5.7	0
Disturbed Barren	0.0	10.0	0
Totals	--	28.7	10.9

2. DESCRIPTION OF SPECIES AND THEIR HABITAT

2.1 QUINO CHECKERSPOT BUTTERFLY

The Quino checkerspot butterfly was listed as endangered on January 16, 1997.

2.1.1 Distribution

The historic distribution of the Quino checkerspot butterfly included coastal California south of Ventura County and inland valleys south of the Tehachapi Mountains. However, approximately 75 percent of its historic range has been lost, and currently it is found only in western Riverside County, southern San Diego County, and northern Baja California, Mexico (Mattoni et al. 1997).

2.1.2 Natural History

Habitat. The Quino checkerspot butterfly is found in several plant communities, from scrub on coastal bluffs, coastal sage, chaparral, and oak woodlands to desert pinyon-juniper woodlands. However, it is only found in openings within these plant communities having a sufficient cover of larval food plants and annual forbs that provide nectar for adults. The larval host plants are annuals that thrive in clay soils but can also occur in other soil types (Mattoni et al. 1997).

Breeding. Adults are flying from late February to April. Females lay egg masses consisting of 120 to 180 eggs that hatch in 7 to 10 days. Total egg production ranges from 400 to 800 eggs per female. Prediapause larvae undergo two or three molts before entering diapauses as third or fourth instar larvae. Prediapause larvae are communal, while postdiapause larvae are solitary. Diapause breaks after sufficient rainfalls to establish food plants. The postdiapause larvae progress through three to seven more instars before they pupate among low plants or under rocks. Adults emerge in about 10 days (Mattoni et al. 1997).

Diet. Larvae feed on dwarf plantain (*Plantago erecta*), purple owl's clover (*Castilleja exserta*), white snapdragon (*Antirrhinum coulterianum*), woolly plantain (*Plantago patagonica*), and bird's beak (*Cordylanthus rigidus*) (Mattoni et al. 1997).

2.1.3 Threats

This species is threatened by agricultural and urban development and other land use changes, habitat fragmentation, invasive nonnative plant species, and disrupted fire regimes (Mattoni et al. 1997).

2.2 COASTAL CALIFORNIA GNATCATCHER

The coastal California gnatcatcher was listed as threatened on March 30, 1993.

2.2.1 Distribution

The coastal California gnatcatcher is a resident bird species found from Los Angeles County southward to northwestern Baja California, Mexico, extending south to the vicinity of El Rosario, Mexico, and eastward to the eastern base of the Sierra San Pedro Martir. This species has been extirpated from Ventura County (NatureServe 2007a).

2.2.2 Natural History

Habitat. The coastal California gnatcatcher makes use of several distinctive subassociations of the coastal sage scrub plant community, particularly communities dominated by California sagebrush (*Artemisia californica*). It generally avoids crossing areas of unsuitable habitat (NatureServe 2007a).

Breeding. This species breeds from February to mid-July, with an average clutch size of 3.8 and 3 to 4 clutches laid per year. Incubation is carried out by both sexes and lasts about 14 days, with a 16-day nestling period. The nest is an open cup style (NatureServe 2007a).

Diet. The coastal California gnatcatcher is a ground and shrub-foraging insectivore (NatureServe 2007a).

2.2.3 Threats

The remaining populations of coastal California gnatcatchers are highly fragmented by urban development and expanding transportation corridors. They are also threatened by brown-headed cowbird parasitism as a result of habitat fragmentation. Wildfires can also have a significant impact (NatureServe 2007a).

2.3 LEAST BELL'S VIREO

The least Bell's vireo was listed as endangered on May 2, 1986.

2.3.1 Distribution

Least Bell's vireo is a migratory songbird that once had a widespread breeding range throughout the Central Valley of California to the Sierra Nevada foothills and Coast Ranges. It extended into northwestern Baja California, Mexico, and included populations in Death Valley and the Mojave Desert. By 1990, 80 percent of the U.S. population was found along only five drainages: Santa Margarita River, Sweetwater River, San Luis Rey River, San Diego River, and Santa Ana River. The winter range extends to the Cape region of Baja California, with some individuals remaining in southern California (NatureServe 2007b).

2.3.2 Natural History

Habitat. The least Bell's vireo uses dense brush, mesquite, willow-cottonwood forest, streamside thickets, and scrub oak habitats in arid regions, but frequently near water. Moist woodland, bottomlands, woodland edge, scattered cover, and hedgerows are used in cultivated areas, and willow-dominated woodlands are used in riparian areas. Open woodland and brush are used in winter (NatureServe 2007b).

Breeding. Migration into the breeding range occurs near the end of March. Nests are constructed in shrubs or low trees about 1 meter above the ground in a horizontal or downsloping twig fork, often near the edge of a thicket. Nesting vegetation in California is frequently willow (*Salix* sp) or rose (*Rosa* sp.). Three to five eggs are laid in a clutch, and incubation lasts 14 days. Both adults tend the young, which fledge at 10 to 12 days. Some pairs can raise multiple broods annually in some areas. Migration out of breeding areas takes place in July to late September, but some individuals will overwinter in the United States (NatureServe 2007b).

Diet. The least Bell's vireo diet consists primarily of insects, but it will also eat spiders, snails, and fruits. This species forages in dense brush and sometimes in treetops. They glean prey from leaves and bark but will also hover-hunt and hawk prey (NatureServe 2007b).

2.3.3 Threats

The least Bell's vireo has a limited range in southern California and Baja California and is threatened by habitat loss and parasitism by cowbirds (NatureServe 2007).

2.4 PENINSULAR BIGHORN SHEEP

The population of bighorn sheep in the United States Peninsular Ranges was listed as endangered on March 18, 1998.

2.4.1 Distribution

The current population is approximately 334 animals, distributed in 8 known ewe groups (subpopulations) in Riverside, Imperial, and San Diego counties from the San Jacinto Mountains south to the Mexican border (USFWS 2000).

2.4.2 Habitat Requirements

The Peninsular bighorn sheep is restricted to the east-facing, lower elevation slopes [typically below 4,600 feet (1,400 meters)] of the Peninsular Ranges along the northwestern edge of the Sonoran Desert. Bighorn sheep are wide-ranging animals that require a variety of habitat characteristics related to topography, visibility, water availability, and forage quality and quantity. Steep topography is

required for lambing and rearing habitat and for escaping from predators. Open terrain with good visibility is critical because bighorn sheep primarily rely on their sense of sight to detect predators. In their hot, arid habitat, water availability in some form is critical, especially during the summer. A wide range of forage resources and vegetation associations is needed to meet annual and drought-related variations in forage quality and availability (USFWS 2000).

2.4.3 Threats

Limiting factors apparently vary with each ewe group and are not well understood in all cases. The range of factors appears to include predation, urban-related sources of mortality, low rates of lamb recruitment, disease, habitat loss, and human-related disturbance (USFWS 2000).

Human disturbance has the potential to disrupt normal bighorn sheep social behaviors and use of essential resources, and cause bighorn sheep to abandon traditional habitat. Human disturbance in the form of construction activities has been found to cause bighorn sheep to abandon traditional habitat. While they eventually returned to the area following cessation of construction activities, ewes have been observed abandoning lambing habitat while construction activities were ongoing within their home range (Etchberger and Krausman 1999).

Human disturbance in other essential habitats, including foraging habitat, could also cause bighorn sheep to abandon habitat. The Peninsular bighorn sheep use alluvial fans and washes in spring and summer (March through August) or during any period of limited forage availability, such as times of drought, since wash vegetation remains green longer than vegetation in other areas (Andrew 1994). Alluvial fans and wash areas are also important during the reproductive season (March through August), because nursing ewes often concentrate their foraging efforts in areas with higher forage quality. Alluvial fans contain more productive soils and support greater herbaceous growth than steeper, rockier soils, during this nutritionally demanding period. In the Peninsular Ranges, bighorn sheep have been frequently observed within 0.5 miles from mountainous habitat feeding in or moving across washes and alluvial fans (DeForge and Scott 1982).

2.5 SAN DIEGO THORNMINT

The San Diego thornmint was listed as threatened on October 13, 1998. A Designation of Critical Habitat for the species was proposed on March 14, 2007.

2.5.1 Distribution

The San Diego thornmint is an annual herb occurs in San Diego County, California, and northwestern Baja California, Mexico. Populations in the United States range from San Marcos east to Alpine and south to Otay Mesa in San

Diego County. This species occupies an estimated 156 hectares. About 60 percent of the reported individuals are concentrated in four populations (i.e., (b) (7)(E), and two populations on (b) (7)(E)). At least nine sites are known to have recently supported *A. ilicifolia* in Baja California (USFWS 1998).

2.5.2 Natural History

The San Diego thornmint is an annual aromatic herb of the mint family. It has paired leaves and several sharply spined bracts below whorled flowers. *A. ilicifolia* can be distinguished by its flower, which has hairless anthers and style. The tubular two-lipped corollas are white with rose markings on the lower lip.

The plant usually occurs on heavy clay soils in openings within coastal sage scrub, chaparral, and native grassland of coastal San Diego County, and in isolated populations south to San Telmo in northern Baja California. It is frequently associated with gabbro soils, which are derived from igneous rock, and also occurs in calcareous marine sediments (USFWS 1998).

2.5.3 Threats

The primary threats to this species are urban and agricultural development, competition from nonnative plant species, off-road vehicle use, mining, grazing, and trampling by hikers and other foot traffic (USFWS 1998).

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3. ACTION AREA

The action area consists of those lands that will be directly and indirectly impacted by the Project and are known to be occupied or potentially occupied by federally listed species. Maps depicting the location of the tactical infrastructure are provided in **Appendix A**.

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4. EFFECTS OF THE ACTION

4.1 QUINO CHECKERSPOT BUTTERFLY

The Project is likely to adversely affect the Quino checkerspot butterfly throughout the impact areas in Section A2-B through A2-N. The majority of adverse effects will occur through the direct loss of habitat. Quino will be in different life stages during the construction timeframe and might be killed or injured during construction activities. However, BMPs will help to reduce or avoid these impacts (see **Section 1.3**).

A survey of the project corridor in March 2008 indicated that approximately 27 acres of suitable Quino checkerspot butterfly habitat occur within the project footprint of the project is considered suitable habitat for the Quino checkerspot butterfly (CBP 2008). The areas that were dismissed as being suitable habitat were disturbed or lacked proper host plants or nectar resources. The presence or absence of suitable Quino checkerspot butterfly habitat is presented in **Table 4-1**.

Table 4-1. Impacts on Quino Checkerspot Butterfly, by Section

Section	Suitable Habitat (Yes/No)	Permanent Impact (acres)
A2-B: (b) (7)(E)	Yes	5.0
A2-C: (b) (7)(E)	No	0
A2-D: (b) (7)(E)	Yes	6.9
A2-E: (b) (7)(E)	No	0
A2-F: (b) (7)(E)	Yes	5.2
A2-G: (b) (7)(E)	No	0
A2-H: (b) (7)(E)	Yes	0.9
A2-I: (b) (7)(E)	Yes	8.0
A2-J: (b) (7)(E) oak	Yes	0.4
A2-K: (b) (7)(E)	No	0
A2-L: (b) (7)(E)	No	0
A2-M: (b) (7)(E)	No	0
A2-N: (b) (7)(E)	No	0
Total Impact		26.4

Although BMPs will be implemented to avoid and minimize effects on individuals during construction, there is a relatively high likelihood that some individuals of the species will be killed during construction. This butterfly's biology is somewhat unusual for butterflies in general, in that the 3rd or 4th larval growth (instar) will enter into its winter stasis (diapause) sometime in May (Emmel and Emmel 1973,

USFWS 2003). It remains this way until sufficient winter rains stimulate plant growth (USFWS 2003). If sufficient plant growth occurs, then the caterpillars come out of diapause and continue their feeding until they reach larval maturity, pupate, and then finally emerge as adults. If the winter rains are appropriate, caterpillars emerge from diapause sometime in January. Pupation occurs sometime in February, and adults emerge in March. Females are usually mated on the day they emerge from pupae (USFWS 2003). Depending on the amount and timing of the rains, the timeline could shift either earlier or later. Diapause typically occurs in or near the host plant patch upon which the larvae were feeding prior to entering diapause (USFWS 2003). Adults will disperse to suitable habitat and are known to disperse anywhere from 1 to 3 kilometers a year. Sometimes dispersal could be farther if it is wind-assisted.

The best scenario to reduce effects on individual Quino checkerspot butterflies is for construction—clearing or removing host plants from the 60-foot impact corridor—to start immediately after emergence of the adults in March. However, since individual variation in time of emergence occurs, some Quino will likely still be in pupation and unable to disperse away from the impact area. Therefore, even under this best-timing scenario, some individuals will still likely be killed. Numbers of individuals lost to construction could increase from this minimum, depending upon the timing of land clearing for the construction effort. As such, direct effects of construction activities on this species will be short-term, major, and adverse, while long-term effects will be moderately adverse.

Indirect effects from construction and subsequent operation of the access and patrol roads include dust impacts on individuals and habitat that will extend beyond the boundaries of the project corridor. Increased settling of dust on larval host species and on nectar-providing species for the adults could reduce palatability of larval host plants and reduce availability of nectar to adults. With the use of BMPs to reduce dust emissions during construction, these effects are anticipated to be short- and long-term, minor to moderate, and adverse in the project area.

A beneficial effect anticipated from the Project is the reduction of foot traffic and grazing impacts on habitat for and individuals of this species. This area currently receives heavy foot traffic and illegal cattle grazing. These activities undoubtedly result in adverse effects due to reduction of habitat quantity and quality, and to crushing of individuals. The potential cessation of these illegal activities in this area could result in short- and long-term, minor to major, beneficial effects on this species.

4.2 QUINO CHECKERSPOT BUTTERFLY CRITICAL HABITAT

The Project in Section A2-K may affect, but is not likely to adversely affect, Quino checkerspot butterfly critical habitat. Primary constituent elements (PCEs) for Quino checkerspot butterfly critical habitat include grassland and open-canopy woody plant communities, such as coastal sage scrub, open red shank

chaparral, and open juniper woodland, with host plants or nectar plants; undeveloped areas containing grassland or open-canopy woody plant communities, within and between habitat patches, utilized for Quino checkerspot butterfly mating, basking, and movement; or prominent topographic features, such as hills and/or ridges, with an open woody or herbaceous canopy at the top. Prominence should be determined relative to other local topographic features (67 FR 18356 – 18395).

While Section A2-K is in Quino checkerspot butterfly habitat, this section will require the conversion of an existing fence. Additionally, the March 2008 survey indicated that no suitable Quino checkerspot butterfly habitat occurs in Section A2-K. Therefore, the area impacted is previously disturbed and is not expected to contain the PCEs for Quino checkerspot butterfly.

4.3 COASTAL CALIFORNIA GNATCATCHER

The Project is likely to adversely affect the coastal California gnatcatcher. The majority of adverse effects will occur through the direct loss of habitat. Additionally, gnatcatchers will be nesting and generally active throughout the construction timeframe, potentially resulting in the loss or abandonment of nests.

Coastal California gnatcatchers were not observed during the October 2007 surveys, although surveys were not conducted during the proper season, or in accordance with USFWS protocol (CBP 2008). However, habitat for coastal gnatcatcher was identified during the October 2007 surveys. This species occurs almost exclusively in mature coastal sage scrub habitat (NatureServe 2007), with occasional populations in maritime chaparral. Coastal sage scrub is present in Section A2-B, A2-C, A2-D, A2-G, and A2-K (see **Tables 1-1, 1-2, and 1-3**). However, Section A2-D, (b) (7)(E) has the highest quality habitat for the coastal California gnatcatcher. Temporary and permanent impacts on its habitat in each section are presented in **Table 4-2**.

Table 4-2. Impacts on Coastal California Gnatcatcher Habitat (Diegan Coastal Sage Scrub), by Section

Section		Permanent Impact (acres)	Temporary Impact (acres)
A2-B:	(b) (7)(E)	5.0	2.07
A2-C:		0.9	0
A2-D:		6.9	0.00
A2-G:		0.0	1.87
A-2K:		6.4	0
Total Impact		19.2	3.94

A beneficial effect anticipated to result from the Project is the reduction of foot traffic and grazing impacts on habitat for and individuals of this species. This area currently receives heavy foot traffic and illegal cattle grazing. Cross-border violators sometimes set wildfires in this area. These activities undoubtedly result in adverse effects due to reduction of habitat quantity and quality, interference with breeding and nesting behaviors, and potentially even direct mortality of eggs or young in nests. Reduction and potentially even cessation of these illegal activities in this area could result in short- and long-term, minor to major, beneficial effects on this species.

Adverse indirect effects will occur, as construction will occur during this bird's reproductive season. Nest failure for the gnatcatcher could occur as a result of construction-related activities, such as noise, disturbance, and repetitive flushing in or near occupied habitat. However, most of the project corridor does not contain currently suitable habitat. Additionally, this species may also be indirectly affected by the invasion and spread of exotic plant species associated with the development of new access and patrol roads and the widening of existing ones. The invasion of exotic plant species can lead to the loss of native habitat through type conversion of the plant community.

4.4 LEAST BELL'S VIREO

The Project may affect, but is not likely to adversely affect, the least Bell's vireo. One occurrence of least Bell's vireo has been recorded since 1986 along the access road between Sections A2-F (b) (7)(E) and A2-G (b) (7)(E). However, this bird was not observed during biological surveys of the project area in October 2007, although surveys were not conducted during the proper season, or in accordance with USFWS protocol (CBP 2008). The vegetation type that occurs along the access roads between these sections is southern mixed chaparral. Survey results indicate that there is little potential for suitable habitat within the impact corridor. However, potential habitat for least Bell's vireo does occur near Section A2-K (b) (7)(E). Noise created during construction activities could have an impact on this species if it is present. However, due to the temporary nature of construction, the Project is not likely to adversely affect the least Bell's vireo.

4.5 PENINSULAR BIGHORN SHEEP

The Project may affect peninsular bighorn sheep; however, the nature or intensity of such effects cannot be accurately predicted at this time. The entire Project is located southwest of its known range (USFWS 2000). NatureServe data indicate that the nearest documented occurrence of sheep was 2.8 miles to the east of the westernmost end of A-2N. Therefore, no direct effects are expected; however, indirect effects could result from increased or decreased disturbance. Bighorn sheep populations (*Ovis canadensis*) are affected by many human activities in North American deserts (USFWS 2000). Cumulative effects of human disturbance have been implicated in a number of effects, including the

abandonment of habitat. There is evidence that in some circumstances, sheep may habituate to predictable human activity (USFWS 2000). However, even in otherwise optimum habitat, sheep are known to abandon an area, either temporarily or permanently, when the limit of their tolerance to disturbance is exceeded (USFWS 2000).

Changes in cross-border violator traffic patterns result from a myriad of factors in addition to border patrol operations and therefore are considered unpredictable and beyond the scope of this BRP. Impacts on Peninsular bighorn sheep and its critical habitat due to construction-related disturbance will be minimized through use of the BMPs (see **Species-Specific Conservation Measures** in **Section 1.3.2**). The conservation measures requiring that any work that could disturb the bighorn sheep cease as soon as individuals are observed within 1 mile of any construction activities or along associated access roads will minimize the extent to which individuals avoid use of the Project area for foraging. Additionally, the USFWS might decide to conduct a telemetry study to determine the effects of the Project.

4.6 PENINSULAR BIGHORN SHEEP CRITICAL HABITAT

The Project may affect peninsular bighorn sheep in Sections A2-I, A2-J, A2-K, A2-L, A2-M, or A2-N. In these sections, critical habitat (the current designation) is located less than 1 mile from Section A2-N to approximately 6 miles from Section A2-I. The primary biological and physical constituent elements under the current designation of critical habitat, that are essential to the conservation of Peninsular bighorn sheep include space for the normal behavior of groups and individuals; protection from disturbance; availability of the various native desert plant communities found on different topographic slopes, aspects, and landforms, such as steep slopes, rolling foothills, alluvial fans, and canyon bottoms; a range of habitats that provide forage, especially during periods of drought; steep, remote habitat for lambing, rearing of young, and escape from disturbance and/or predation; water sources; suitable linkages allowing individual bighorn to move freely between ewe groups, and maintain connections between subpopulations within the Peninsular Range metapopulation; and other essential habitat components to accommodate population expansion to a recovery level (66 Federal Register [FR] 8650-8676).

The following are the revised primary constituent elements for peninsular bighorn sheep that are currently proposed (72 FR 57740-57779).

1. Moderate to steep, open slopes (20 to 60 percent) and canyons, with canopy cover of 30 percent or less (below 4,600 feet (1,402 meters) elevation in the Peninsular Ranges) that provide space for sheltering, predator detection, rearing of young, foraging and watering, mating, and movement within and between ewe groups.
2. Presence of a variety of forage plants, indicated by the presence of shrubs (e.g., *Ambrosia* spp., *Caesalpinia* spp., *Hyptis* spp., *Sphaeralcea* spp.,

Simmondsia spp.), that provide a primary food source year round, grasses (e.g., *Aristida* spp., *Bromus* spp.) and cacti (e.g., *Opuntia* spp.) that provide a source of forage in the fall, and forbs (e.g., *Plantago* spp., *Ditaxis* spp.) that provide a source of forage in the spring.

3. Steep, rugged, slopes (60 percent slope or greater) (below 4,600 feet (1,402 meters) elevation in the Peninsular Ranges) that provide secluded space for lambing as well as terrain for predator evasion.
4. Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resources areas, such as foraging areas and escape terrain.
5. Intermittent and permanent water sources that are available during extended dry periods and that provide relatively nutritious plants and drinking water.

No direct effects on primary constituent elements of peninsular bighorn sheep are expected; however, indirect effects could result from increased or decreased disturbance.

Impacts on Peninsular bighorn sheep and its critical habitat due to construction-related disturbance will be minimized through use of the BMPs (see **Species-Specific Conservation Measures** in **Section 1.3.2**). The conservation measures requiring that any work that could disturb the bighorn sheep cease as soon as individuals are observed within 1 mile of any construction activities or along associated access roads will minimize the extent to which individuals avoid use of the Project area for foraging. Additionally, the USFWS might decide to conduct a telemetry study to determine the effects of the Project.

4.7 SAN DIEGO THORNMINT

The Project may affect, but is not likely to adversely affect, the San Diego thornmint. San Diego thornmint is a spring annual. There are no records of this species near the Project; however, appropriate soils occur throughout the project area (NatureServe 2007). Without spring surveys, it is not possible to rule out the potential occurrence of this species in the project area; therefore, the Project has the potential to impact an unknown occurrence of this species. BMPs will help to reduce or avoid impacts (see **Section 1.3**). Therefore, the Project is not likely to adversely affect the San Diego thornmint.

5. DETERMINATION OF EFFECT

Table 5-1 summarizes the federally listed species and habitats that are known to occur within 25 miles of the United States/Mexico international border in Val Verde County. There are 13 federally listed taxa that are known to occur, or have the potential to occur, within or adjacent to the project area. Additionally, three of the listed species have designated critical habitat in or near the project area.

Of the species listed above, the Project is likely to adversely affect the Quino checkerspot butterfly and California coastal gnatcatcher. The Project may affect, but is not likely to adversely affect, Quino checkerspot butterfly critical habitat, the least Bell's vireo, and the San Diego thornmint. The project may affect peninsular bighorn sheep and peninsular bighorn sheep critical habitat; however, the nature or intensity of the effects cannot be accurately predicted at this time. It has been determined that the Project will have no effect on coastal California gnatcatcher critical habitat, the southwestern willow flycatcher, the arroyo toad, the Otay tarplant, Encinitas baccharis, and the willowy monardella for the reasons listed below. Construction and operation of tactical infrastructure will increase border security in the San Diego Sector and might result in a change to illegal traffic patterns. Changes in cross-border violator traffic patterns result from a myriad of factors in addition to border patrol operations, and therefore, are considered unpredictable and beyond the scope of this BRP.

Southwestern Willow Flycatcher. The Project will have no effect on the southwestern willow flycatcher. There are no occurrences of this bird within 1 mile of the survey area. It was not observed during biological surveys of the project area in October 2007 (CBP 2008). Additionally, as a result of the surveys it was determined that there was little potential for suitable habitat.

Arroyo Toad. The Project will have no effect on the arroyo toad. The arroyo toad was not observed during biological surveys of the project area in October 2007; although surveys were not conducted during the proper season, or in accordance with USFWS protocol (CBP 2008). Additionally, as a result of the survey it was determined that there was little potential for suitable habitat (CBP 2008). Suitable habitat was identified upstream of Section A2-K (CBP 2008). Because this is upstream of the Project, no direct or indirect effects are expected.

Otay Tarplant. The Project will have no effect on the Otay tarplant. The entire Project is located east of its known range (USFWS 2004).

Willowy/Jennifer's Monardella. The Project will have no effect on the willowy/Jennifer's monardella. The entire Project is located east of the known range of this species complex (Reiser 1994).

Encinitas Baccharis. The Project will have no effect on Encinitas baccharis. The entire Project is located outside its known range (Reiser 1994).

Table 5-1. Federally Listed Species and Critical Habitats Potentially Occurring Within the Project Area and the Determination of Effects

Species	Listing/Critical Habitat Designated	Determination of Effect
Quino checkerspot butterfly, <i>Euphydryas editha quino</i>	Endangered	Likely to adversely affect
Quino checkerspot butterfly, <i>Euphydryas editha quino</i> Critical Habitat	Designated (2002)	Not likely to adversely affect
Quino checkerspot butterfly, <i>Euphydryas editha quino</i> Critical Habitat	Proposed (2008)	Not likely to adversely affect
Coastal California gnatcatcher, <i>Poliophtila californica californica</i>	Threatened	Likely to adversely affect
Coastal California gnatcatcher, <i>Poliophtila californica californica</i> Critical Habitat	Revised (2007)	No effect
Southwestern willow flycatcher, <i>Empidonax traillii extimus</i>	Endangered	No effect
Least Bell's vireo, <i>Vireo bellii pusillus</i>	Endangered	Not likely to adversely affect
Arroyo toad, <i>Bufo californicus</i>	Endangered	No effect
Peninsular bighorn sheep, <i>Ovis canadensis</i>	Endangered	May affect
Peninsular bighorn sheep, <i>Ovis Canadensis</i> Critical Habitat	Designated (2001)	May affect
	Revised proposed designation (2007)	May affect
Otay tarplant, <i>Deinandra conjugens</i>	Threatened	No effect
Encinitas baccharis, <i>Baccharis vanessae</i>	Threatened	No effect
Willow/Jennifer's Monardella, <i>Monardella linoides</i> ssp. <i>viminea</i> / <i>Monardella stoneana</i>	Endangered	No effect
San Diego Thornmint, <i>Acanthomintha ilicifolia</i>	Threatened	Not likely to adversely affect

Notes:

¹ The U.S. Fish and Wildlife Service anticipates the revised final critical habitat designation for the Quino checkerspot butterfly will be published in the *Federal Register* in 2008.

² The U.S. Fish and Wildlife Service anticipates the revised final critical habitat designation for the Peninsular bighorn sheep will be published in the *Federal Register* in October 2008.

6. REFERENCES

- Andrew 1994 Andrew, N. G. 1994. *Demography and habitat use of desert-dwelling mountain sheep in the east Chocolate Mountains*, Imperial County, California. M.S. Thesis, University of Rhode Island. 135 pp.
- CBP 2008 Customs and Border Protection. 2008. *Draft Environmental Assessment for the Construction, Operation, and Maintenance of Tactical Infrastructure*. January 2008.
- DeForge and Scott 1982 DeForge, J. R. and J. E. Scott. 1982. "Ecological Investigations into High Lamb Mortality." *Desert Bighorn Council Transactions* 26:65-76 (1982).
- Emmel and Emmel 1973 Emmel, T.C., and J.F. Emmel. 1973. *The Butterflies of Southern California Natural History Museum of Los Angeles County, Science Series*. No. 26. 148pp.
- Etchberger and Krausman 1999 Etchberger, R. C. and P. R. Krausman. 1999. "Frequency of Birth and Lambing Sites of a Small Population of Mountain Sheep." *Southwest. Nat.* 44(3):354-360 (1999).
- Mattoni et al. 1997 Mattoni, R., G. F. Pratt, T. R. Longcore, J. F. Emmel, and J. N. George. 1997. "The endangered quino checkerspot butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae)." *Journal of Research on Lepidoptera* 34:99-118.
- NatureServe 2007 NatureServe. 2007. NatureServe Explorer: *An online encyclopedia of life [web application]*. Version 6.2. NatureServe, Arlington, Virginia. Available online at <<http://www.natureserve.org/explorer>>. Accessed: November 30, 2007.
- NatureServe 2007 NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available online at <<http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Baccharis+vanessae>>. Accessed June 5, 2008.
- NatureServe 2007a NatureServe. 2007. *Polioptila californica - California Gnatcatcher*. NatureServe Explorer: *An online encyclopedia of life [web application]*. Version 6.2. NatureServe, Arlington, Virginia. Available online at <<http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Polioptila+californica+californica>>. Accessed June 5, 2008.


- NatureServe 2007b NatureServe. 2007. *Vireo bellii pusillus* - Coues, 1866. *NatureServe Explorer: An online encyclopedia of life* [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available online at <http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Acanthomintha+ilicifolia>>. Accessed June 5, 2008.
- Reiser 1994 Reiser, C. H. *Rare Plants of San Diego County*. Imperial Beach, California. Aquifer Press. Available online at <http://sandiego.sierraclub.org/rareplants/>>. Accessed on June 6, 2008.
- USFWS 1998 U.S. Fish and Wildlife Service. 1998. "Endangered and threatened wildlife and plants; determination of endangered or threatened status for four plants from southwestern California and Baja California, Mexico." *Federal Register* 63(197): 54938–54956.
- USFWS 2000 U.S. Fish and Wildlife Service. 2000. *Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California*. U.S. Fish and Wildlife Service, Portland, OR. Xv+251 pp.
- USFWS 2003 U.S. Fish and Wildlife Service. 2003. *Recovery Plan for the Quino Checkerspot Butterfly* (*Euphydryas editha quino*). Portland, Oregon. X+179pp.
- USFWS 2004 U.S. Fish and Wildlife Service. 2004. *Recovery Plan for Deinandra conjugens (Otay Tarplant)*. Portland, Oregon. Vii+65pp.
- USFWS 2008 U.S. Fish and Wildlife Service. 2008. *5-Year Review for Monardella linoides subsp. Vininea (Willow Monardella)*. Carlsbad, California.

APPENDIX A
ACTION AREA MAPS

(b) (7)(E)

Figure A-1. - Access Road

(b) (7)(E)

Figure A-2.  Staging Area, Access Road

(b) (7)(E)

Staging Area & Access Road

(b) (7)(E)

Figure A-3.

(b) (7)(E)

(b) (7)(E)

Figure A-4.

(b) (7)(E)

Figure A-5. [redacted] and Access Road

(b) (7)(E)

Figure A-6.
Road Widening, Staging Area, & Access Road

(b) (7)(E)

Figure A-7. Access Road

(b) (7)(E)

Figure A-8. Access Road

(b) (7)(E)

Staging Area, and Access Road

(b) (7)(E)

Figure A-9.

(b) (7)(E)

and Access Roads

(b) (7)(E)

Figure A-10.

(b) (7)(E)

Figure A-11. Access Roads

(b) (7)(E)

Figure A-12. Staging Area, and Access Road

(b) (7)(E)

and Access Road

(b) (7)(E)

Figure A-13.

(b) (7)(E)

(b) (7)(E)
and Access Roads

Figure A-14.

(b) (7)(E)

(b) (7)(E)

Figure A-15. Road Widening, and PVB Converted to Fence

(b) (7)(E)

(b) (7)(E)

Figure A-16. Access Road, Road Widening, and PVB Converted to Fence

(b) (7)(E)

(b) (7)(E)

(b) (7)(E)

Figure A-17. Staging Area, Access Road and PVB Converted to Fence

(b) (7)(E)

(b) (7)(E)

Figure A-18. PVB Converted to Fence

(b) (7)(E)



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Project Area

(b) (7)(E)

Figure A-19.

(b) (7) (E)

(b) (7) (E)

Figure A-20. Staging Area, Access Road, and PVB Converted to Fence

(b) (7)(E)

(b) (7)(E)

Figure A-21. Access Road, and PVB Converted to Fence